logically as they are incorporated seems sufficiently obvious, but collectors have sometimes numbered each species separately, a system which is possibly open to slight objection so long as the collection is small and composed of well-defined specimens, but which entails endless confusion as the collection increases in size; for instance, if a specimen, as often is the case, displays several species, it may not be easily traced in the register, and, again, if the species has been wrongly determined, a fresh number must be assigned to it. Dr. Brendler rightly lays stress on the importance of supplementing the general register by a card-catalogue in which the species are grouped separately, each card to contain the whole of the available information relating to the corresponding specimen.

The author has greatly increased the value of the book to the amateur collector by inserting lists of firms supplying mineral specimens or materials and apparatus required in the testing, housing or labelling of specimens and quoting, where possible, the prices. An error on p. 7 calls for correction; the branch in Paris of the Foote Mineral Co. (of Philadelphia) has been closed for some years.

G. F. H. S.

THE PLANT KINGDOM.

Das Pflanzenreich. Vols. xxviii. to xxxvii. Scrophulariaceæ–Calceolarieæ. By Fr. Kränzlin. Pp. 128. Price 6.40 marks. Erythroxylaceæ. By O. E. Schulz. Pp. 166. Price 8.80 marks. Styracaceæ. By J. Perkins. Pp. 111. Price 5.60 marks. Potamogetonaceæ. By P. Ascherson and P. Graebner. Pp. 184. Price 9.20 marks. Orchidaceæ–Cœlogyninæ. By E. Pfitzer and Fr. Kränzlin. Pp. 169. Price 8.40 marks. Liliaceæ–Aloineæ. By A. Berger. Pp. 347. Price 17.60 marks. Sarraceniaceæ. By J. M. Macfarlane. Pp. 89. Price 2.40 marks. Stylidiaceæ. By J. Mildbraed. Pp. 98. Price 5 marks. Nepenthaceæ. By J. M. Macfarlane. Pp. 92. Price 4.60 marks. Araceæ–Monsteroideæ and Calloideæ. By A. Engler and K. Krause. Pp. 160. Price 8.40 marks. (Leipzig: Wilhelm Engelmann.)

THE ten volumes forming the subject of the present notice have appeared at intervals during the last two years. Six volumes deal with entire families, while four are confined to tribes. The tribe of the Calceolarieæ, represented by two small genera and Calceolaria, is collated by Dr. Franz Kränzlin. Fifty years ago these South American plants were in great request, but interest in collection and cultivation has waned until recently the collections of Dr. Weberbauer in Peru have furnished a number of new species. Basing his opinion on the well-known tendency of Calceolaria to hybridise, the author favours the view that natural hybrids occur, and appends a list of possible hybrids.

The volume on the Erythroxylaceæ is practically a monograph of the genus Erythroxylon. Systematic alterations are introduced by Miss J. Perkins in the family Styracaceæ; the genera Lissocarpa and Diclidanthera are excluded, Foveolaria is reduced to Styrax, and Pterostyrax is restored to generic rank. The distribution and a high proportion of endemic species are outstanding features of the principal genus Styrax. Dr. Graebner has undertaken the difficult task of classifying the Potamogetonaceæ, with the help of Dr. Ascherson for the marine genera. The chief difficulty lies in the interpretation of the numerous critical species of Potamogeton, which also hybridise readily; lists of hybrids and fossil species are given.

The monograph treating the tribe Cœlogyninæ is of considerable importance because the talented author, Dr. Pfitzer, who died before the manuscript was quite complete, had adopted a definite opinion with regard to splitting the large orchidaceous genera of which Cœlogyne furnishes a good example. Besides restoring some old genera, five new ones were formed, and are left by Dr. Kränzlin on Pfitzer's authority. The Aloineæ fills a thick volume, as the genera Kniphofia and Haworthia each provides more than sixty species, and the species of Aloe number 168. The tribe, almost entirely African, supplies a number of the succulent plants cultivated in green-houses in northern climates or acclimatised on the Mediterranean littoral. Hybridisation is prevalent, and is even inter-generic, as crosses have been effected between species of Gasteria, on the one hand, and Aloe, Haworthia, and Apicræa on the other.

The two families Sarraceniaceæ and Nepenthaceæ have been monographed by Prof. J. M. Macfarlane, who presents his general descriptions in English. Naturally, a full account is provided of the lures for insects and the question of insect digestion. Sarracenia furnishes a number of artificial hybrids, and some natural hybrids have also been discovered. The name of Stylidiaceæ displaces the Candolleaceæ of the "Pflanzenfamilien," and Candollea gives way to Stylidium. Dr. J. Mildbraed also restores Forstera and Oreostylidium to generic rank. Finally, Drs. Engler and K. Krause have worked out two tribes of the Araceæ. Raphidophora, Monstera, and Spathiphyllum are the more important genera, all belonging to the tribe Monsteroideæ.

THE COMPARATIVE PHYSIOLOGY OF MAN.

The Human Species, considered from the Standpoints of Comparative Anatomy, Physiology, Pathology, and Bacteriology. By Ludwig Hopf. Authorised English translation. Pp. xx+457. (London: Longmans, Green and Co., 1909.) Price 10*s*. 6*d*. net.

THE literature of evolution is exceedingly extensive and varied, but there are not many books which, in a small compass, place before the general reader a simple account of man's structure, nature, and zoological relationships extending over the whole field of anthropology. This task has been attempted with considerable success in the present volume. Commencing with a review of the speculations of primitive man as to his own origin, the author passes

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on to a classification of mankind and his ancestral and recent history as revealed by fossil and other remains, from the Tertiary period to the present day. Subsequent chapters deal with comparative anatomy and physiology, psychology and sociology, while the last quarter of the book is devoted to the less studied, or perhaps less popular, topic of comparative pathology and therapeutics. To compress so vast a subject within the limits of a small volume has led to all descriptions being of the briefest. None the less, the book will appeal to those who desire to acquire a superficial knowledge of the main features of human evolution, while the sections will serve as starting-points for further study to those more deeply interested, and be of considerable assistance to popular lecturers, who will find therein a dense array of facts.

The introduction comprises a summary of the surmises made in the past as to the origin of man, and leads up to the study of evolution. The history of the systematic classification of mankind into races unexpectedly ends with Huxley and Max Müller, more recent authors being omitted. The section on comparative anatomy is full and freely illustrated, but is marred, at any rate for the general reader, by a tendency to give the names of the parts referred to in Latin in the text, and in the illustrations to label them sometimes in English, at others in Latin, while in some cases abbreviations only are made use of. This is the more to be regretted as the names employed are not always those found in English text-books of anatomy. Space being valuable, it may be wondered why long tables of chemical compositions, such as that of the brain, which occupies a whole page, were included. It seems at times as if the author was uncertain whether he was writing for the student or the general public. The sections on early man are too short for the former in comparison with the rest, while the number of unexplained technical terms must prove a stumbling-block to the latter. Indeed, in many respects the volume suggests a very full and illustrated syllabus of a course of lectures rather than a text-book or a popular description.

Regarded in this light, the book would be a useful aid to students of human or comparative anatomy and physiology. Perhaps the most interesting, because most unusual, chapter in a work of this kind is that dealing with pathology, which contains much that would otherwise have to be garnered with considerable labour, since the data are scattered through a multitude of technical journals. The author shows that in general the phenomena of disease in man, whether due to animal or vegetable parasites or to disorders of metabolism, are similar to those presented by the higher animals, the differences being largely explicable by such features as the assumption of the erect attitude, the habits of feeding, and more particularly by the aggregation into large communities, the often unhygienic methods of clothing, and the abandonment of free physical exercise which has characterised the recent history of man.

PRACTICAL PHYSICS.

(1) *Practical Physics*. By L. M. Jones. Pp. viii+330. (London: Longmans, Green and Co., 1909.) Price 3*s*.

(2) *Handbuch für physikalische Schülerübungen*. By Prof. Hermann Hahn. Pp. xv+506. (Berlin: Julius Springer, 1909.) Price 20 marks.

(1) OPINIONS will always vary as to the precise means to be adopted to achieve any definite end, and this is notably the case in the teaching of practical physics, as is shown by the many text-books on the subject. It is the more to be remarked that most teachers will readily subscribe to the thesis which Mr. Jones lays down, perhaps a little combatively, in the preface to his book, as to the fundamental idea of practical courses of physics. All students will agree that practice must illustrate and substantiate theory in a connected, logical manner, so that a "course" may review the fundamental conceptions of the subject, and, in so doing, train the reasoning power. Several text-books, however, might be conceived as conforming to this canon.

But Mr. Jones has that best of qualifications—of having actually used his course for several years, and proved it by success. The title of the book is slightly misleading, as the book only treats of heat, light, and electricity. Within these limits we have little but praise for it. The explanations of theory are lucid, and give an orderly, interesting, and withal simple conspectus of fundamental conceptions founded upon an extremely complete series of nearly 200 experiments. The illustrations are attractive and not too complex, and the instructions as clear as could be desired. Practical exercises at the end of chapters give scope for that element of initiative which is necessary to approximate students' work to the conditions of research, and the general revision papers at the end of the book afford a useful method of eliciting the physical conceptions learned.

The list of experiments covers such subjects as vapour pressure, dispersion, and electrolysis, which are not commonly included in "intermediate" courses, while simple methods of electrification, the electroscope, and electrophorus are omitted which are usually included. In spite of this, and a relegation of instruction as to probable errors to notes which might have been better treated in an introduction, the book is always stimulating, suggestive, and clear.

(2) The "Handbuch" of Prof. Hermann Hahn is a book of a totally different character. It offers a clear, eminently logical, and complete course of practical physics, with all that the term usually signifies, to teachers. It is a book which one can freely praise and blame with difficulty. Commencing with conceptions of space and mass, it covers very completely general properties of matter. Indeed, nearly half the book is devoted to this part of the subject, but we can hardly regret it. Incidentally, we find the student is to be introduced, at the outset, to his apparatus of calculation—an excellent idea. The slide rule comes on p. 5, and a student is early to be taught habits

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